

A system and method are presented for fusion-splicing a first optical transmission member to a second optical transmission member with a heat source, the first and second optical transmission members each having a retaining member surface configured to form a continuous joint joining the first and second optical transmission members. The method includes disposing the first optical transmission member in a first retaining member and disposing the second optical transmission member in a second retaining member. First and second retaining members are composed of similar or like materials. Corresponding optical surfaces of the first and second optical transmission members are aligned along one axis. The heat source is directed to heat a specific region of the retaining member surfaces to be joined, adjusting a temperature level of the heat source to reach a temperature equal to or higher than the softening temperature of at least one of the retaining members surfaces to form a softening region thereon, placing the retaining member surfaces in proximity to one another, thereby achieving the fusion-splicing. Then allowing a joint formed intermediate one end defined by the first retaining member and another end defined by the second retaining member to cool.